

REMARKS**Petition to Designate Priority**

The newly amended claims are supported in the present specification and are allowable over the prior art independent the previously mentioned priority claim. Therefore, Applicants withdraws the request to designate priority back to a previously filed patent.

Rejection of claims 1, 29-34, 36-47, 50-56 under 35 U.S.C. § 112

The rejection under 35 U.S.C. § 112 is moot in light of the amendment to claim 1 and claim 48. Claim 1 and claim 48 have been amended to include the limitation nickel sulfate material which is clearly supported in the specification (see, for example, paragraph 58). Thus, Applicants respectfully request removal of the rejection under 35 U.S.C. § 112.

Rejection of claims 48-53 under 35 U.S.C. § 102(b) over Bogauchi, Ovshinsky, Baba, Tanigawa.

Claim 48 has been amended so that nickel sulfate is reacted with a second reactant in the presence of an oxidizing agent to produce active nickel material. None of the above references teach this process. Thus, Applicants respectfully request removal of the rejection under 35 U.S.C. § 102(b).

Claim Rejections under 35 U.S.C. § 102 and 35 U.S.C. § 103:

None of the cited references teach forming a positive electrode by reacting. Also, applicant specifically refers to claims 36 and claims 37 in which specific oxidizing agents are mentioned. In the previous Office Action the Examiner only rejected claim 37 as being dependant off a claim which was not supported by the specification. However, this rejection is moot in light of the amendment. By using utilizing an oxidizing agent while forming the active material, Applicants create improved material with oxyhydroxide distributed throughout a bulk electrode. These preoxidized active nickel materials can provide advantages over the prior art such as improved charge state balancing (see the original specification page 4, paragraph 35). None of the cited references by themselves or in combination teach this claimed limitation.

Cited References:

The Examiner has made rejection under the Bogauchi et al., Ovshinsky et al., Baba et al., Sakamoto et al, and Tanigawa et al, stating that each claim is either anticipated or nonobvoious in view of the references. However, none of these references teach making preoxidized active nickel material particles as required by Applicants' claims.

Bogauchi:

Bogauchi teaches subjecting nickel hydroxide substrate (not nickel sulfate as now stated in the newly amended claim) to an oxidation treatment. (column 3, lines 10-57). Thus, Bogauchi does not teach reacting nickel sulfate with a second reactant in the presence of an oxidizing agent to form preoxidized active nickel material particles.

The oxidation process of Bogauchi is fundamentally different from Applicants' claimed method. Bogauchi teaches first making a substrate comprising nickel hydroxide (see first through sixth manufacturing methods in column 3, lines 10-57) and then subjecting the substrate comprising nickel hydroxide to an oxidation treatment. The treatments described in Bogauchi are surface oxidation treatments of substrates comprising already formed NiOH particles. Further, Bogauchi does not provide a process for making preoxidized active nickel material for a positive electrode.

Ovshinsky:

Ovshinsky teaches subjecting formed nickel hydroxide (not nickel sulfate as now stated in the newly amended claim) to an oxidation treatment. (column 23, lines 4-27). Ovshinsky does not teach reacting nickel sulfate with a second reactant in the presence of an oxidizing agent to form preoxidized active nickel material particles.

The oxidation process of Ovshinsky is fundamentally different from Applicants' claimed method. Ovshinsky teaches first making modified nickel hydroxide particles by precipitation of divalent cobalt hydroxide onto nickel hydroxide particles (column 22, lines 20-25) and subsequently oxidizing the particles by stirring the particles in air over night (column 23, lines 10-14). The process described in Ovshinsky is a surface oxidation treatment of formed NiOH particles. Further, Ovshinsky does not provide a process for making preoxidized active nickel material for a positive electrode.

Baba:

Baba teaches subjecting formed nickel hydroxide (not nickel sulfate as now stated in the newly amended claim) to an oxidation treatment. (see for example, column 4, lines 17-39). Baba does not teach forming a **preoxidized** active nickel material or reacting in the presence of an oxidizing agent.

The oxidation process of Baba is fundamentally different from Applicants' claimed method. Baba teaches spraying sodium hydroxide aqueous solution on the surface of nickel hydroxide particles dispersed in a fluidized granulator with cobalt hydroxide precipitate disposed thereon. The sodium hydroxide aqueous solution which has been uniformly dispersed on the nickel hydroxide particles reacts with the hot air, and as a result, the cobalt hydroxide precipitate has a larger oxidation number. (See column 4 lines 17-39). The process described in Baba is a surface oxidation treatment of formed NiOH particles. Further, Baba does not provide a process for making **preoxidized** active nickel material for a positive electrode.

Sakamoto:

Sakamoto teaches preparing a mixed aqueous solution containing NiSO_4 , MnSO_4 , an aqueous NaOH solution and an aqueous NH_3 . In contrast to Applicants claimed invention, Sakamoto teaches using specific steps to prevent oxidation during formation of NaOH . For example, Sakamoto teaches feeding Argon as the components are mixed to remove potential oxidants from the solution (See Sakamoto, Column 10, lines 15-18.)

Sakamoto further teaches obtaining a suspension and subjecting it to decantation to separate the precipitate. This precipitate is washed with water and then the metal oxide powders in the state of being moisturized with water are kept in the air, thereby

subjecting the powders to an oxidation treatment. The process described in Sakamoto is a surface oxidation treatment of formed NiOH particles. Sakamoto does not teach forming a **preoxidized active nickel material or reacting in the presence of an oxidizing agent.**

Tanigawa:

Tanigawa teaches subjecting nickel material to two separate oxidation treatments. In each treatment, the nickel material is already formed NiOH (not nickel sulfate as now stated in the newly amended claim). Tanigawa does not teach forming a **preoxidized active nickel material or reacting in the presence of an oxidizing agent.**

The oxidation process of Tanigawa is fundamentally different from Applicants' claimed method. Tanigawa teaches a first oxidation treatment in which raw material containing nickel hydroxide solid solution powder is heated in air at 120 C (column 15, lines 53-55). Tanigawa further teaches a second oxidation treatment in which the resultant raw material of the first treatment is subjected to a second oxidation treatment in a solution containing sodium hydroxide and NaClO. (column 15, line 63 – column 16, line 3). Each of the treatments of Tanigawa is a surface oxidation treatments of already formed NiOH particles. Further, Tanigawa does not provide a process for making **preoxidized active nickel material for a positive electrode.**

Applicants' Claims:

Applicants' claims are not directed to surface oxidation treatments of **already formed active material particles**, but rather Applicants' claim is directed to an oxidation treatment as nickel sulfate reacts to form active material particles. Applicants teach, in an

exemplary embodiment of the claimed invention, active metal particles formed by combining a sulfate solution with an ammonium ion solution to form nickel oxyhydroxide throughout the bulk of the electrode (See Applicants' specification page 6, paragraph 56-58 and page 3, paragraph 30). The solutions are combined and thus, the active material particles are formed in the presence of an oxidizing agent, thereby allowing oxidation of the active material as the particles are gradually grown. (page 6, paragraph 57).

In contrast to the process taught in Bogauchi, Applicants' claimed method does not permit the core, bulk and surface of the particles to be oxidized to a predetermined degree (page 6, paragraph 58) during formation.

In summary, the cited references (Bogauchi et al., Ovshinsky et al., Baba et al., Sakamoto et al, and Tanigawa et al.) do oxidizing while forming nickel hydroxide from nickel sulfate.

Rejection of Claims 48-53 over 102(b) over Bogauchi et al., Ovshinsky et al., Baba et al., Sakamoto et al, and Tanigawa et al.

As discussed in detail above, claim 48 and all claims dependant thereon requires forming active material by reacting nickel sulfate in the presence of an oxidizing agent, which is patentably distinct from the cited references, therefore, removal of the present rejection is respectfully requested.

Rejection of Claims 1, 38 and 39 are rejected under 102(b) over Sakamoto et al

As discussed in detail above, claim 1 and all claims dependant thereon requires forming active material by reacting nickel sulfate in the presence of an oxidizing agent, which is patentably distinct from the cited references, therefore, removal of the present rejection is respectfully requested.

Rejection of Claims 54-56 over 103(a) over Bogauchi et al., Ovshinsky et al., Baba et al., Sakamoto et al., and Tanigawa et al.

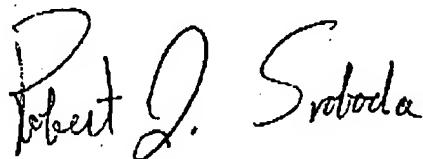
As discussed in detail above, claim 48 and all claims dependant thereon (including 54-56) requires forming active material by reacting nickel sulfate in the presence of an oxidizing agent, which is patentably distinct from the cited references, therefore, removal of the present rejection is respectfully requested.

Rejection of Claims 30-33, 36-37, 40, 41, 43, 44, 46, and 47 under 103(a) over Sakamoto

As discussed in detail above, claim 1 and all claims dependant thereon (including claims 30-33, 36-37, 40, 41, 43, 44, 46, and 47) requires forming active material by reacting nickel sulfate in the presence of an oxidizing agent, which is patentably distinct from the cited references, therefore, removal of the present rejection is respectfully requested.

Applicants believe that the rejection of claims has been overcome and that the amended claims are allowable over the references cited by the Examiner. Applicants respectfully request withdrawal of all outstanding rejections and respectfully submit that the application stands in condition for allowance. If the Examiner has any questions or suggestions regarding this amendment, the Examiner is respectfully asked to contact Applicants' representative at the telephone number or email address listed below.

Respectfully submitted,



Robert J. Svoboda

Reg. No. 58,135

Date: 12 October 2007
Energy Conversion Devices
2956 Waterview Drive
Rochester Hills, MI 48309
Phone: (248) 299-6052
Fax: (248) 844-2273
rsvoboda@ovonic.com